Fighting Fire with Fire

Burns out tactics have been used on the Rim Fire in the last few days to strengthen containment lines and decrease fire intensity on the northern and eastern flanks of the fire. Crews have been working round-the-clock to close the gap between the uncontrolled fire edge and constructed containment lines and natural barriers. The risk of spot fires over the line is lessened when unburned fuels adjacent to containment lines can be removed from the equation.

When indirect containment lines are built, firefighters need to reduce the fuel near the line to moderate the fire activity. Indirect containment lines are built some distance away from the active fire edge to take advantage of existing barriers and to provide for firefighter safety. If unburned fuel remains between the containment line and the fire, the line could be breached. If a fire reaches the line on its own, with too much intensity, the line may not be able to hold the fire and spot fires across the line can occur. A burnout operation is done to remove the unburned fuel between the containment line and the fire edge to reduce this potential. Burning out allows better control over the intensity of the fire against the containment line. A risk analysis and planning process is conducted and approved by the incident commander prior to undertaking a burn out.

Firefighters have several methods to apply fire on the ground for burn outs. One of these methods is using aircraft equipped with a Plastic Sphere Dispenser (PSD) machine. The PSD was developed to provide a method of igniting ground fuels, in a short time, on large acreage without causing undue damage to the tree canopy. With aerial ignition, firefighters on the ground are not required to perform the ignition hence it is safer.

The spheres, which look like pingpong balls, are made of high impact polystyrene containing approximately 3.0 grams of potassium permanganate. The PSD injects ethylene-glycol (antifreeze) into the plastic sphere, initiating an exothermic reaction, and then expels the primed sphere from the aircraft.

Other methods include hand ignition using drip torches or fusees. A drip torch is a hand-held device that consists of a fuel fount, burner arm, and igniter, for igniting fires by dripping flaming liquid fuel on the materials to be burned. Fuel used is generally a mixture of diesel and gasoline. A fusee is a colored flare designed as a railway warning device, widely used to ignite backfires and other prescribed fires.

Stanislaus Hotshot crews hand-fired containment lines on the ground near Brushy and Two-Mile Creeks close to Forest Road 3N83 on September 7 when the fire was making high intensity runs out of Clavey Creek that were threatening the containment line. A helicopter equipped with a PSD machine also aided in the operation to slow the movement of the main fire by igniting ground fuels ahead of the blaze. “By lighting at the tops of the ridges, we can create a nice backing fire that removes ground fuels, while keeping the canopy intact.” said Helicopter Superintendent, Dave Phillips.